ABSTRACT

METHOD FOR REDUCING HEAT TREATMENT RESIDUAL STRESSES IN SUPER-SOLVUS SOLUTIONED NICKEL-BASE SUPERALLOY ARTICLES

In accordance with an embodiment of the present invention, a method for reducing residual stress in a nickel-base superalloy article comprising about 40-70% of gamma prime phase and having a gamma prime solvus temperature is disclosed. The method comprises the steps of super-solvus heat treating the superalloy article about 5-40°F (3-22°C) above the gamma prime solvus temperature; and holding at the super-solvus heat treatment temperature for about 0.25-2 hours, wherein the heat-treated superalloy article has reduced residual stress.